NOTICE.

Subscribers are reminded that the annual subscription paid by them for 1934-35 expires with this number.

The next number will be sent by V. P. P. for Rs. 2-11-0 (in the case of Gazetted Officers) and Rs. 2-7-0 (in the case of non-gazetted Officers), the amounts being the revised annual subscription, including the postal registration fee of Re. 0-3-0.

All Subscribers are requested to honour the V. P. P. on presentation.

Those who object to the V. P. P. system are requested to remit the annual subscription (Rs. 2-8-0, for the gazetted, and Rs. 2-4-0 for the non-gazetted officers) in advance, so as to reach the Editor of the magazine on or before 1st October 1935.

Attention is invited to the notice-slip on the cover page offering the alternative of remitting five years' subscription in advance.

EDITOR.

NOTICE.

The following extract from a letter from the Inspector General of Forests, India, regarding contributions to the **Indian Forester,** is published for the information of intending contributors to that Journal.

" I take this opportunity of inviting your attention to an arrangement under which articles for the **Indian Forester,** were originally sent through the provincial members of the Board of Management who ordinarily edited the papers before sending them to the Honorary Editor. This is no longer being done with the result that the Honorary Editor has to spend most of his spare time out of office hours on this kind of work and without sufficient outside help the Honorary Editor's duties become very burdensome. I would ask you kindly to use your influence to endeavour to enforce the original arrangement. "

It is accordingly requested that prospective contributors will co-operate by forwarding articles through P. W. Davis Esq., Principal, Forest College, Coimbatore.

Vol. XIX. JUNE 1935. No. 4.

CONTENTS.

No.		Page.
1.	College-Day, Madras Forest College, June 29th, 1935	187
2.	College Notes	206
3.	Extracts :	207
	Decorative veneers for varied tastes ... 207	
	All washed up... 208	
	Suggestions to educate the general public 211	
	Business as a career 213	
	Forest Research in India, 1933–34 ... 215	
	Insects of Sandal 216	
	The Ascu Wood Preservation process ... 217	
	The Railway Board Special Committee... 218	
	Emulsion of Falkamesam and Crude oil 218	
	A new method of accelerated Service test with wood-preservatives ... 219	
	Polyphyletic origin of Metazoa from plants ... 220	
	Bird Malaria ... 221	
	Pollination Mechanism in Conifers ... 222	
4.	Notifications relating to Rangers ...	223

Managing Committee.

P. W. DAVIS, B.A., I.F.S.,
(President.)

Rao Sahib V. N. SESHAGIRI RAO, B.A.,
(Business Superintendent.)

G. VISWANATHAM, B.A.,
(Editor & Treasurer.)

C. P. BHIMAYYA, B.A.,
N. SRIDHARAN PILLAI, B.A.,
(Assistant Editors.)

THE

Madras Forest College Magazine.

(PUBLISHED QUARTERLY).

Vol. XIX. JUNE 1935. No. 4

The Managing Committee do not hold themselves responsible for opinions expressed by contributors.

College Day, Madras Forest College, June 29th, 1935.

The distribution of prizes and certificates to the twenty second batch of students trained in the Madras Forest College took place on June 29th, 1935, the concluding day of the "Forest College Week." His Excellency, Lord Erskine, Governor of Madras, presided over the function. The students of the College furnished a guard of honour, which His Excellency, and Mr. T. A. Whitehead, the Chief Conservator of Forests, inspected.

Mr. P. W. Davis, the Principal, opened the proceedings, by addressing the gathering as follows :—

"Your Excellency, Mr. President, and Members of the Board of Visitors, ladies and gentlemen,

"I am greatly privileged in being able to welcome Your Excellency to this College upon your first visit to Coimbatore, and I wish to thank your Excellency on

behalf of the Board of Visitors and the staff for so kindly having consented to honour us by your presence at our prize giving this year.

"Today's occasion, Sir, marks the conclusion of twenty three years since the opening of the College as a training institution for Forest Rangers. The present building was completed just twenty years ago We owe its existence to the wise prevision, and enthusiasm of a few Forest Officers, first among whom must be mentioned the name of Mr. F. A. Lodge, formerly Conservator of Forests at Coimbatore, who was its chief protagonist and founder, and that of Mr. Eardley Wilmot, then Inspector General of Forests, who gave vigorous support to the scheme. There was, at that time, and there still is, but one other College in India where Range Officers are trained and that is far off at Dehra Dun. The practical training at Dehra Dun takes place in forests some of which are under climatic conditions widely different from those existing in southern and peninsular India, and the advisability, if, not the necessity, for our Rangers to draw their experience from our own rich and varied forests became apparent. The location of the College upon its present site was determined by the Forest Member of the Board of Revenue chiefly with an eye to advantages to be contingent upon proximity to the Agricultural College. Advantages there are. Unfortunately, from the point of view of tree-growing the choice was not happy, for most trees show a determined reluctance to grow in this so called "black-cotton" soil on which we are situated which accounts for the not very imposing flora of our 198 acres of ground in spite of our best efforts. It is perhaps worth note in passing that the estate appears to be becoming a little sanctuary for many birds, some of which are scarce outside, but stay with us throughout the year. A better

centre for touring than this could hardly have been found, for we are situated within easy reach of a surprisingly wide range of forest types,—the world famous Nilambur Teak Plantations, the splendid deciduous and ever-green forests of the Anamalais, the varied flora of the Nilgiris, and its foot-hills, the fuel forests of Walayar, which largely supply Coimbatore, the sandal areas of North Coimbatore and Salem Districts, and so on, with the result that except when we go to North Salem District and Bangalore in the senior year, we are never more than one day's easy journey from Coimbatore.

" Nevertheless, as nearly half our time is spent in camps the cost of training a forest Ranger is expensive as compared with some other kinds of schooling, the more especially as the College is not endowed nor are scholarships offered. We do admit two private students annually from Madras Presideney upon reduced fees but in principle we do not encourage students to come here unless they have at least a conditional promise of employment after they complete the course. This keeps the numbers rather small in comparisou with those of other Colleges but we have the satisfaction of knowing that the majority of the students leaving here go straight into jobs where they do apply what they have learnt before they have had time to forget it all, and without their having to pass through a protracted time of demoralising uncertainty hoping for " something to turn up ". In these days of retrenchment it might not be out of place here to mention that the cost of training has been a matter of constant review by those responsible and the total expense of training a student today is but 45 per cent, of what it was 12 years ago, and even as compared with three years ago the cost is reduced by nearly one quarter without having sacrificed the tuition given or reducing the curriculum of

studies. In matters of education there is obviously a limit to the process of economising beyond which it is impolitic to go, and this applies also to the upkeep of a considerable estate used for training purposes.

" I must not however take up too much time in generalities and I come now, Sir, to review as briefly as possible the work of the past year.

" The instructional staff consisted, as in recent years, of the Principal, one Imperial Forest Officer, two Provincial Forest Officers and the Curator of the Gass Forest Museum. During last vacation Rao Saheb K. G. Belliappa was relieved by Mr. W. H. Woodhouse Adolphus as Second Senior Instructor.

" We began the year with 43 students—25 seniors and 18 juniors. Of these, 26 were from Madras and 17 were from outside Madras, coming from Bombay and from Hyderabad, Travancore and other states. It is my painful duty here to record the loss of one promising student of the Junior year, Kumar Vira Pam Bhoi, Zamindar of Bhopalpatnam Baster State, who died last January at Government Head Quarters Hospital at Ootacamund, of Black-water fever, after a very short illness. His death was greatly lamented, bringing to an untimely end a popular and genial figure, and a very promising sportsman and cricketer, endowed with a fund of honour and generous good nature which attached him to all. A students' inter-divisional football cup, designated the "Vira Pam Bhoi Cup" has been subscribed for, which will be competed for annually in future. All the present seniors are young and comparatively unsalted to forest life, being directly recruited and not promoted from the forester ranks. They have much yet to learn in the school of experience. Next year out of 22 new students coming to

us, only 5 will be Madras Government students, and these perhaps will be the last of the " promoted " foresters. The senior and junior Divisions tour separately, each for about five months of the year. The seniors, with the Principal and the Second Senior Instructor went to Walayar (in Palghat Dn.), Nedangayam (in Nilambur Dn.) Aiyur (in North Salem Dn.), Bangalore, and Arambyshola at Ootacamund. The juniors under the First Senior Instructor Mr. A. A. Khan, and the First Junior Instructor, Rao Saheb V. N. Seshagiri Rao, toured in Sadivayal (Palghat Dn.), Mount Stuart (South Coimbatore Dn.), Kargudi (Nilgiris Dn.), and Bandyshola (Coonoor.)

" The Principal visited all the junior camps during the year. Special mention must be made of the Bangalore camp, as it was an innovation this year. Engineering is one of the most important subjects which a Ranger has to learn. This is often of a pioneering type—aligning, and building roads over hilly and broken country, constructing culverts and bridges, handling heavy and bulky materials, blasting rocks, in river beds or hill-sides and so on. We do not ordinarily have opportunity to see or do sufficient work of this nature in our normal routine camps, so a ten days intensive course of field works training with the Queen Victoria's Own Madras Sappers and Miners at Bangalore has now been included in the curriculum for the future. Although it was hard work I think the students enjoyed it and my only wish is that the course could have extended to three weeks instead of 10 days. However, we really got through a great deal of useful work in those 10 days, which would not otherwise have been touched.

" While on our tours, the students visited various places of interest, among which I should mention a match factory at Palghat, Messrs. Parry & Co's Saw Mill at

Kallai, The Standard Furniture Co's Works at Kallai, The Timber Depot at Beypore, The Commonwealth Trust Tile Factory at Feroke and a suspension bridge across the Moyar river.

" We are indebted to various Officers for special lectures delivered in camps; at Aiyur indeed the sandal experts took most of the work off my shoulders for which I am duly greatful. At head quarters we enjoyed a visit to Madukkarai to witness the complexities of modern cement manufacture. We also paid visits to the Central Jail, Coimbatore and to several buildings in course of construction in the town. I desire to thank the Principal of the Agricultural College for permitting our students to go there for special lectures and I acknowledge the kind courtesy of Messrs. S. Sundararaman, Government Mycologist, of Dr. Subba Rao, Soil Physicist, Mr. P. Venkata Ramiah, Government Agricultural Chemist, and of Mr. S. Ramasubramania Ayyar of the Agricultural College for lectures and demonstrations which were highly appreciated.

" Amongst our recreational activities physical training and games are compulsory here. Physical " jerks " are conducted in the mornings and games are held in the evenings. Hockey, Cricket, Tennis and Foot-Ball were played at head quarters and in camps with neighbouring teams whenever we had a chance. It would take too long for me to tell you all about them. Suffice that we have lost about as many games as we have won, and with as good humour.

" The College Sports were held as usual in October. We chose for it one of the few days in the year when it rained! Needless to say no records were broken. Senior

student Ahmed Sheriff was awarded the Richmond Cupr having collected the largest number of points. The prizes were kindly distributed by Mrs. C. C. Wilson.

" Swimming is our chief sport at Nedungayam camp which is ideal for it in November and December, and it was here that the annual swimming race was held, conducted this year by Mr. C. C. Wilson. The swimming medal was won by student Madhava Menon.

" The Marthon Race over about 7 miles of country was held on the 9th March as soon as possible after reassembly at head quarters. B. M. Bopayya, a junio, student, reached home first in 44 minutes, 25 seconds and he gets the Mannarghat Moopil Nayar Cup. Ahmed Sheriff was second. Both are to be congratulated upon a well sustained effort.

" A result of our training is that the physique of all students perceptably improves and they put on appreciable weight and chest development. As regards the general health of the College, it might appear contradictory for me to say that each student on the average lost about 14 working days out of the year due to sickness from one cause and another, although medical attention is always available. Malaria is inevitable in forest camps, and was responsible for a loss of 144 days, but this is less than usual; minor injuries—knocks, sprains and so on—were responsible for 125 absences in the year. For the first time on record there were two cases of Black-water fever; the first case in January last I have already referred to, the second case occurred in March—a menial who fortunately recovered after being admitted to headquarters hospital in Coimbatore.

" Another feature which we endeavour to encourage is the Students' Debating Society which meets at the

Students' Club weekly during residence at Headquarters and which was active in stimulating discussion upon topics of interest.

" The Gass Forest Museum continued to interest the public and there were 35,596 visitors during the year. Mr. C. G. Trevor, Inspector General of Forests, inspected it in October last in company with the Chief Conservator of Forests, Madras. A re-cataloguing the contents has been in process, and is now almost complete.

" I now come to the results of the examinations. Twenty-four students sat for the final examinations; of these two obtained Honours Certificates, 21 reached the Higher Standard, and one obtained a Lower Standard Certificate. The highest percentage of marks obtained in the final examinations is 84, and the lowest percentage is 56. The class average is 67 per cent. As a result of the examination in First Aid all 24 students obtained the certificates of the Saint John's Ambulance Association.

" The Junior Division have acquitted themselves well on the whole, although a defecient knowledge in English has handicapped several students.

" Before concluding, Sir, I would like to add that the endeavour of this College is to provide a true vocational training which will make each student fit into his calling without difficulty. It would be folly however, to suppose that a mere two years here suffices to turn out a finished product,—in America they consider five years is necessary to make a Forester. We who have to instruct feel that we must not rest satisfied with what we have been able hitherto to achieve. Yet it rests entirely with those students who are about to leave us to equip themselves with those habits of mental self discipline which will make

them a success. They will find as Range Officers scope for every faculty. To all departing students I wish the best of fortune and I trust that they will maintain the friendships they have formed here.

" Once again I thank you, Sir, for so kindly consenting to come such a long journey here in order to preside with us to-day.

" I now ask His Excellency, the Governor, to present the certificates and prizes. "

His Excellency, the Governor, then distributed the following certificates and prizes :—

List of passed students arranged according to marks.

Madras Ranger Honours Certificates.

1. C. P. Bhimayya.
2. V. Govinda Menon.

Madras Ranger Higher Standard Certificates.

3. P. Narayanan Nair.
4. V. Madhava Menon.
5. M. M. Ponnappa.
6. Ahmad Shariff.
7. M. R. Tiruvenkatachari.
8. N. V. A. Robeiro.
9. C. S. Sivagnanam.
10. K. Subbanna.
11. Sakaram.
12. M. Ramajayam.
13. N. H. Naik.
14. A. Yagnasawmy.
15. J. B. Lobo.
16. M. Ansar Badsha.
17. G. Nataraja Pillai.

18. C. M. John.
19. R. D. Kale.
20. T. R. Vijiaraghavan.
21, M. L. Mathur.
22. S. D. Apte.

Higher Standard (Unplaced.)

A. Piravi Perumal Pillai.

Madras Ranger Lower Standard Certificate.

23. Mir Mohammad Ali.

List of Prizes winners—June 1935.

S. No.	Name of Prize.	Student who obtained it.
1.	Gold medal for the Senior Student on marks.	C. P. Bhimayya.
2.	Silver medal for honours.	C. P. Bhimayya. V. Govinda Menon.
3.	Campbell-Walker Prize for the best student in Forestry.	C. P. Bhimayya.
4.	Lodge Prize for Engineering.	V. Govinda Menon.
5.	Brazier Prize for the student likely to make the best outdoor Ranger.	P. Narayanan Nair.
6.	Madras Conservators' Prize for Survey and Drawing.	M. M. Ponnappa.
7.	Madras Conservators' Prize for Botany.	C. P. Bhimayya.
8.	Madras Conservators' Prize for Range Administration.	M. R. Tiruvenkatachari.
9.	Chief Conservator's Prize for the Best Junior student.	N. Sreedharan Pillai.
10.	Indian Forester Prize for an essay by past student.	(Not awarded).
11.	Indian Forester Prize for an essay by present student.	(Not awarded).

S. No.	Name of Prize.	Student who obtained it.
12.	Richmond Cup to the student obtaining the greatest number of points in the more important events at the College Sports.	Ahmed Sheriff.
13.	Pentland Shield for the all round Athlete.	Admed Sheriff.
14.	Fischer Cup for Tennis.	V. Govinda Menon.
15.	Mannarghat Moopil Nayar Cup for cross country race.	B. M. Bopaiyya. Ahmed Shariff.
16,	Cowley Brown Cup for Inter-divisional Hockey,	Senior Division.
17.	Swimming medal.	V. Madhava Menon.
18.	Vira Pambhoi football cup.	Senior Division.
19.	Winner of the best essay in the Madras Forest College Magazine for the year 1934-35.	C. P. Bhimayya.
20.	Debating Society Prize for elocution.	Ahmed Shariff. K. R. Radhakrishnan.

His Excellency, the Governor then addressed the gathering as follows :—

" I am greatly indebted to you, Sir, for the honour conferred upon me by your invitation to preside at this function to-day and I assure you that I much appreciate the opportunity afforded me of gaining some knowledge of the way in which students are trained for very important work they have to do as Range Officers in the forest administration of India, whether in Madras Presidency itself, or in other provinces or in Native States. My knowledge of Madras forests (apart from occasional mornings after the elusive snipe of the Chingleput scrub

jungles) is at present limited to a most interesting and instructive day at Teppakadu, following on the capture of what I understand was an embarrassingly large bag of wild elephants. But I hope before long, in the course of my tours, to have the opportunity of seeing much more of the Forest Department and its work.

" I have been greatly interested, Sir, in your report, particularly, in regard to the history of the college and the difficulties with which you have to contend on account of its situation. That the average cost per student in spite of this disadvantage has been so considerably reduced in the last few years, without impairing in any way the efficiency of the tuition, redounds greatly to the credit of the various members of staff, past and present.

Balanced Training.

" I am much impressed by the full and varied programme of work done in the College. It is indeed a strenuous life here, but so too is the life of a Ranger and it would of course be disastrous, if the technical side of a student's training were overstressed to the detriment of his physical development. It seems to me that by due attention to both the requirements you have attained a balance, by which you have every chance of leaving here fully equipped for your arduous works.

" I congratulate you, Sir and the staff, on a very successful year and I congratulate also those students to whom I have just had the pleasure of distributing prizes. The task of the Principal and staff is a very difficult one, as they have in a short space of two years to turn out students capable of carrying on high traditions of their service and I am sure, that in this task, they are succeeding admirably.

The Traditions of the service.

" Students leaving this year will, I hope, remember those traditions. Their duty carries them to lonely and often unhealthy places but they should always bear in mind that they form the backbone of the Forest Administration and that on them largely rests the success of the Department. Forests of India in general and Madras in particular, are a very valuable national asset. They furnish a considerable revenue to the Government, though it has of course been much depleted during the recent years of depression. They supply a large proportion of the needs of the people and in deciding between confict-ing claims, between this demand and the necessity for conservation, the department earns a certain amount of criticism which you, students as Rangers in your own charge, will often find vented on you. Lastly they are of incalculable importance in the conservation of water-supply and it requires no great effort of memory to recall the flood disasters in various parts of the world due to a short sighted policy of forest denudation in the past.

" To all students and particularly those leaving, I wish every success. I have already referred to the need that they should keep always before them the traditions of their Service and I am sure that if they do, they will equally remember with gratitude the Forest College to which they owe their excellent training.

" Before I close, may I express my sincere thanks to Mr. Davis and members of the staff for their hospitality and say how very much I appreciate it. "

Mr. T. A. Whitehead, the Chief Conservator of Forests, Madras, then addressed the audience thus :—

" Your Excellency, Principal of the Forest College, ladies and gentlemen,—

" In endorsing the welcome extended to Your Excellency by the Principal, it is my privilege to tell you, Sir, how very pleased we all are at your presence here today, in the first year of your office as Governor of this presidency, and to thank you for coming a long way this afternoon at considerable personal inconvenience to do us an honour which we all greatly appreciate. We shall look forward too, to Your Excellency seeing us at work in the forest itself.

" We deeply regret the death of student Kumar Veera Pambhoi in January. Everything that could be done was done to avert this sad misfortune, but unfortunately the illness was too severe to answer to medical treatment.

" The senior students completed their course of training with the final examinations just held. The examinations show that the average has been satisfactorily maintained.

" During the past week we have had an opportunity of watching a hockey match between the Seniors and Juniors, and playing tennis with the students and cricket against them. We have noted a spirit of sportsmanship throughout, and also fortitude in adversity.

"We have been definitely impressed by the pleasant atmosphere which prevails this year throughout the College, the excellent manners of the students ; most conspicuous at the variety entertainment to which they treated us

yesterday evening; and the maintenance of the usual high standard of discipline. We feel sure that this is due, in no small measure, to the direct personal influence of the Principal and the Instructors.

" On behalf of the Board of Visitors I wish to thank the Principal and the staff of the College for the zeal which they have shown in their work and the interest which they have taken in the welfare and tuition of the students.

" The examiners for the final examinations are Forest Officers who are not members of the College staff. They come for the purpose from all parts of the Presidency. Up to this year the examiners have received an allowance for the additional heavy work entailed, but now this allowance has been withdrawn. Officers suited to examine in the various subjects having been selected, they were requested to state whether they wished to examine under the revised conditions, although it was pointed out that it might not be possible to accede to their wishes. Their replies came in promptly in the affirmative. I thank you, gentlemen, for this additional evidence of your solicituous regard for the welfare of the department. Before addressing the students, my wife and I wish to thank those ladies and gentlemen who have assisted in making arrangements for our recreation and entertaiment during this week of work, for their kind and willing help.

" We know how much thought, care and hard work it entails and you know bow very sincere is our gratitude to you all.

" Students, and in particular the Seniors: You must have realised in the course of your studies, that, although you have learnt much there is much left for you

to learn, even apart from the constant growth in knowledge which continues to take place in every branch of our profession. Our standard of work in India commands the respect of our brother Forest Officers in other countries, and only the other day the Inspector General of Forests in his address at the reopening of the College at Dehra Dun stated that the standard of forestry in India stood second to none in the world. It is up to you to help in maintaining that standard.

" One of your more important duties will be to carry out the prescriptions of working plans and at times you will have difficulty in doing this. Don't avoid the difficulty, but do your utmost to overcome it. It is much easier to sit down and suggest an amendment to a prescription then to overcome a difficulty which has arisen, and remember that each prescription has been framed only after enquiry, discussion and consideration. Even though a working plan may embody schemes lasting over periods of a hundred years or more, each working plan is revised every ten years, in order to reconsider prescriptions in respect of which difficulties have been encountered in actual practice. For this revision the Working Plans Officer requires accurate and reliable information. Every difficulty and the action taken to over come it needs to be carefully recorded.

" The framing of working prescriptions is not always as simple as it may seem. It would be comparatively easy to prescribe the correct forest policy, from a silvicultural point of view, for any particular block of forest but it is not always easy to coordinate forest policy with the policy of Government. It is our duty as Forest Officers to put before Government honestly and fearlessly the policy which we consider to be correct from a silvicultural

point of view, but if it is not possible for Government to accept that policy it is then our duty to carry out the policy outlined by Government and attempt to frame prescriptions which will be least harmful to our forests.

"You have been taught to keep physically fit. Remember one important precaution against illness. Never climb to a high camp without a change of clothes and always change as soon as you reach your camp and before you do anything else. If on reaching your destination you stand about or busy yourself about arranging the camp, in your wet clothes and in a cool breeze which is more often than not present on the hills, you will get a chill and then the trouble begins. The human frame, however strong, cannot stand that sort of treatment, and there is no reason why it should be called upon to do so. It does not take more than a few minutes to change your clothes and it is most refreshing to do so. See also that your subordinates do the same.

"It is also just as important for you to keep your mind free from anxiety. Strive towards the attainment of complete peace of mind, for if your mind is not at peace you will be in danger of not sleeping well and this may be aggravated into sleepless nights, which if prolonged, will wreck your nerves and your health. It is not easy to attain complete peace of mind amidst the worries of this world, but you will go a long way towards it by keeping your conscience clear. Follow what your conscience tells you is right however distasteful or difficult that lead may be. You will often require courage and determination to do it. Shakespeare recorded this advice briefly in the following words :—

"Unto thine own self be true,
And it must follow, as the night the day,
Thou canst not then be false to any man."

" You have been taught to manage your forests so as not to encroach upon their capital value, but rather to increase it. It is also your duty to protect the wild animals and birds in the forest. A forest without wild life is only half alive.

" You and your subordinates will know who amongst the villagers are forest thieves, illicit graziers and poachers. The capture of thieves and poachers though necessary is not in itself sufficient to ensure protection in the absence of education of public opinion. It is your duty to guide public opinion in the right direction. Talk to individuals: talk to groups of people ; gather the villagers arround you in the evening ; tell them your experiences ; give them the reasons for your actions which they do not understand ; explain to them how essential it is to India to maintain its forests ; and try to foster a communal spirit. This, in fact, forms the most important and the most difficult of your many duties. It requires influence and personality. You will now understand how important it is for you to maintain your health in body and mind and to strive to overcome fear in all its forms. It is the straight road to your own happiness and if you are carefree and happy yourself you cannot fail to spread happiness around you. People will trust you ; they will come to you for advice ; they will come to listen to the things you have to tell them ; and above all they will come to you for the pleasure of coming within the influence of your own joy in life. You will then be content, knowing that you are doing your duty to the best of your ability and that your fellowmen are benefiting by your existence.

" In wishing you farewell, please accept my best wishes for your health, and a happy, carefree, and joyful life."

The gathering then adjourned for a tea party given by the Board of Visitors, the Principal and Staff of the College.

After tea, His Excellency was shown round the museum by the Chief Conservator of Forests. His Excellency showed a great appreciation and interest in the exhibits. Other distinguished guests were likewise pleased to visit the museum and spent in it a long time till late in the evening.

COLLEGE NOTES.

1. The following is a list of the Students who joined the College for the 1935–1937 course :—

S. No.	Name of Student.	Circle or State to which attached.
1.	P. K. Narasimhan	Coimbatore Circle.
2.	S. V. Venkataraman	"
3.	G. Anandathirtha Rao	"
4.	S. N. Venkataraman	W. P. Circle.
5.	K. Suryanarayana Sastri	"
6.	N. P. Choksi	Bombay.
7.	C. K. Chaubal	"
8.	M. M. Shaik	"
9.	E. G. DeSouza	"
10.	S. F. Uppin	"
11.	D. M. Mannige	"
12.	B. D. Nadkarni	"
13.	W. N. Ramachandani	"
14.	Md. Abdul Kader	Hyderabad.
15.	Md. Zainul Aubideen	"
16.	G. L. C. Amarasekera	Ceylon.
17.	A. G. W. DeSilva	"
18.	Kumar Dileepsingh	Kathiwara State C. I.
19.	R. P. Patnaik	Private (Madras).
20.	P. K. Patnaik	Private (Madras).

* * * *

2. Mr. W. H. Woodhouse Adolphus, E. A. C., Senior Instructor of the College was relieved by Mr. R. H. Mitchell E. A. C., who was Instructor in the College during 1924-27.

* * * *

EXTRACTS.

1. Decorative Veneers for Varied Tastes :

Why is it that some veneers appeal to people, and yet others apparently leave them cold in the acquisitive sense ? For oak there will always be a demand according to many, the main reason put forward being that it matches with almost any kind of decoration or furniture, and the factories here which veneer plywood have a steady demand for panels finished with oak.

Then there is mahogany, the pleasing darker colour of which is preferred by many, particularly as panelling by those of an older generation who posses furniture of that wood. It is well known that much of the solid cabinets, wardrobes or chests of olden days were of mahogany, and that these have passed from one generation to another; people treasure them, and when they add to their furnishings they agaih select mahogany, either in solid or veneered material.

Numerous pianofortes made to-day are of a mahogany finish. One leading manufacturer has declared that his firm only make this type, as there is a constant demand on his firm for pianos of this finish.

Gaboon mahogany is popular, this being obtained both in plywood and laminated forms. It is also found suitable for veneering purposes with better figured mahogany from other tropical countries, and is used a great deal by many factories veneering plywood.

The vogue, though, is for walnut the figure of which has an appeal of its own. Figure in wood is regarded as a freak of nature, and in walnut no two pieces can be termed identical even when cut from the same log. Most of this veneer of beautiful figuring is quartered up in use, the four pieces of almost identical design being so laid that they form a complete "picture." Such panels are greatly utilised for shopfitting purposes, these giving a distinguished appearance to the contents to which they act as a background.

Many of the great stores now have exquisitely finished walnut panelling in their shopfronts, and it gives a setting for attractive display of wares that adds distinction. The fitters of these panels no longer rely on the plain veneered type, and where cost is not in question, various woods have been planned

to make backgrounds not possessed by stores nearby. Designers, also, now take a hand in the making up of panels, and the contrasting effects of many beautiful woods make works of art. One of these days perhaps, there will be a specialised exhibition of panels to enable the trade and others to see what can be done with nature's own products. This is a trade with fine decorative achievement to its credit which has involved many firms in the expenditure of a great deal of thought, time and money.

The trade is not limited to a few veneers. Many are being employed. One of the advantages of the veneering trade is that experiments are continually being made in the use of veneers, and there is never any danger that those engaged in the business will fall in a rut. Coloured veneers, or those which have been dyed to special tints, are used by many for furniture and other purposes, and where some woods are regarded as of too dark or deep a hue, they have been bleached to obtain lighter effects. Study and effort are always reaching out to new conquests.

Coming back to the original question, personal fancy and taste have much to do wlth selection of veneers. The writer himself confesses that he has been lured by walnut, although he has no interest in any concern making, selling or veneering such wood, and believe that furniture, panelling or other constructions where this veneer has been used will always have an appeal for him—vogue, fashion or not. Mahogany, however, is " coming back " — or so some experts prophesy ; and if changes do occur in cycles we shall see increasing demand, and may by and by be speaking of the vogue for mahogany.

— The Timber Trades Journal, 27—4—35.

2. All Washed Up :

Condensed from Collier's, The National Weekly

OWEN P. WHITE.

Uncle Sam's good earth — his rich topsoil — is the most valuable thing he owns. With it we have become a rich and powerful nation. Deplete it or destroy it and what happens ? Here are a few facts.

During the past 50 years, due to greatly increased planted acreage, our farmers have tremendously increased their gross production. But despite their fertilizers, newfangled implements and scientific ways, they are raising *less* per acre today than their fathers were 50 years ago. Due to erosion, either

by wind or water, all of our farms have lost some of their topsoil, and some have lost all of it. Yet when I recently suggested to a man who looked as disconsolate as his corn did, that the trouble was that his farm was washing away right out from under him, he replied: " Hell, man, me and dad have already wore out three good farms and so I reckon there ain't nobody can tell us what to do."

I agree, Nobody ever could tell him anything. the result being that within the past 75 years he and a few million like him have caused a colossal, irrevocable waste. Within that time, 35,000,000 acres of good farm land, the equivalent of of 219,000 farms of 160 acres each, have been permanently ruined.

A century ago there was not a ruined acre in Georgia. Look at it today. I visited one country with over 125,000 acres on which a goat couldn't pick a living. Erosion did it. Either because they were ignorant or shiftless the white men who originally cleared this land plowed it in such a fashion as to encourage rain water to run downhill. With every downpour tons and tons of topsoil were washed of every acre and nobody paid any attention to it Why should they? There was plenty of cheap land; if one farm was " wore out " another could be had almost for the clearing. So with no human hindrance, the erosion went on untill the topsoil was gone. That was the end of Stuart Country, Georgia, most of which is now so cut up with prodigious gullies that it will never again be of any use to anybody.

Less than 60 years ago, for example, the drip from the roof of a barn started a small wash which the farmer was too careless to stop up. Just think what a wagon load of rock intelligently applied would have done! Today that little wash, known as Providence Gully, has swallowed up the barn that gave it birth, a church, a schoolhouse, a graveyard, a couple of dwelling houses and several farms. In spots it is 200 feet deep, in places 200 yards wide and, taking all its prongs into consideration, it is several miles long. In that one county there are hundreds of such gullies.

Everywhere I went on a 6000 mile tour of inspection I saw this demonstrated. In North Carolina, where I travelled over 185 square miles, most of which has been stripped of most of its topsoil, I was told that there is no big gully to every hundred acres of land. In South Carolina over a section of 216 square miles, practically every other farmhouse I came to was deserted. I saw a fine-looking old colonial mansion on a hilltop, but when

I went to look at it I found complete desolation. Years ago that farm was the show farm of that part of South Carolina. Today the Negro tenant who occupies the old "great house" is on the relief rolls because, out of the thousand or more acres that surround it, he can't find even two or three from which he can make a living.

There are today vast stretches of timberland scattered from New Jersey to Alabama which are very deceptive in appearance. Looking casually at those lands one thinks that in case we need more farm land we can easily get it by clearing those tracts. But that is a tremendous error. Most of those lands, so far as the next few generations are concerned, cannot be cultivated again. They have been once and that's what's the matter with them.

Nor is the South the only section of our country that is being destroyed by erosion. To a greater or less extent it *all* is. If you doubt that, take a ride into the country and look at the farms. First, you will see that 85 percent of cultivated land is on a slope of 5 percent or better. Second, the crops on the lower ends of these slopes are almost invariably better looking than those at the tops; by the same token, usually the soil at the lower end is of a different color from the soil at the upper. The reason is that the rich topsoil is being washed downhill by the rain water. Keep on looking, and you will see that practically every farmer is a proprietor of a gully—some of them own dozens—whose sole function is to carry the good earth away from the farm.

Look carefully and you will find that on not 3 percent of the farms you pass have their owners plowed their slopes along contour lines, which would largely prevent the run-off of rain water, while in not one half of one percent—except in a few exceptional areas—have they so terraced their lands as almost entirely to eliminate it. For no reason except that it's a lazy man's way, the vast majority of farmers plow straight up and downhill. This turns every furrow into a channel via which some of the fundamental richness of their land is bound to run away from them.

It is comparatively easy to prevent rain water from running downhill and doing damage. In Pennsylvania the sturky farmers of York and Lancaster Countries plow on contour lines, terrace their land where necessary, and keep the grass cover growing on their hilltops by keeping their stock from grazing it off. Their ungullied farms are just as productive as they were 250 years ago because they still have their topsoil.

As a contrast, in Coon Valley, Wisconsin, where the Federal Erosion Service has now established an experimental station, plowing is done by guess and by gosh ; a terrace is atmost a curiosity, and the cattle have eaten the grass off the high spots until they are as bald as tombstones Only eight years ago Coon Valley was as prosperous a small farming section as there was in America. Now it is just another picture of rapidly arriving desolation.

In certain parts of the country one can estimate the loss from erosion by looking at the huge quantities of good earth from farm land that is piled up behind reservoir dams. Out of 13 power dams that I saw in the South, 11 have become so filled with silt within the past four decades that they have been abandoned. The dam across the Colorado River at Austin Texas, filled up with mud to 85 percent of its storage in 20 years. The Elephant Butte reservoir in New Mexico, which provides irrigation water for one of the largest projects in the West, is being ruined at an alarming rate. It is more or less the same with every irrigation project. Unless new methods of of soil cultivatiou are adopted, our entire irrigated civilization is threatened with destruction.

Merely because our forefathers ruined millions of acres of good farm land is no reason why we should gold-brick our posterity by handing them a country they can't live on. Remember that our topsoil is the only thing that conserves our moisture; and consequently to prevent droughts we must prevent soil erosion. The Soil Erosion Service is now at work in 24 stations throughout the country educating farmers to these facts. Mr. H. H. Bennett, the director, has instilled into every one of his young men the idea that his job is of even more importance to the future welfare of this country than that of a congressman. And he is right.

— *Readers' Digest, Nov. 1934.*

3. Suggestions to Educate the General Public :

Propaganda in the realm of forestry is a subject that is at present exercising the minds of forestry officials in India. Current opinion on the matter finds expression in the April issue of *The Indian Forester*, in the following terms :—

It is high time forest officers gave up the idea of isolation and complete disregard of what opinion the public entertains about forestry. In the past the (Indian) Forest Service received full support from the Government, but with the new reforms it will not only be necessary but most essential to enlist the

sympathies of the general public and in particular the educated classes, legislators in particular, and those who are directly or indirectly connected with forestry. The activities of the department will be subject to considerable criticism in the Councils, and it is important that we make a start to view our activities from a different angle. On one side we should launch an organised propaganda against wood substitutes, and the biggest item at present replacing the use of wood in India is reinforced concrete. We are now in a position to recommend the use of treated wood as a very reliable article of use in building construction and a comparatively cheaper proposition.

The present attitude may be summed up as a complete disregard of the enormous quantities and kinds of substitutes being put on the market, and the attitude of the general public towards forestry. The educated classes still understand forestry as merely cutting and selling trees, and the rural population regards it as merely an unavoidable evil.

It is not enough to produce our wares and sit in the hope that they will be marketed. We have to justify our expenditure and our mere existence so that we must not only produce timber, but produce it at a cost so that we can sell it as a commodity better than the substitutes and at comparatively lower prices. We must convince the educated classes that the existence of forest is essential for the welfare of society, and that the interests, of forestry are the interests of the public. What are we doing in this direction? Is it below our dignity to go out of our routine duties to enlist the sympathies of the legislator and of the rural classes in what is essentially their own estate maintained for their own benefit?

We have in some provinces sets of magic-lantern slides, but we do not remember to have read in any annual report that they were used during the year, and if they were used at all, what was the number of audience who went away with a new idea about forestry. Surely each province can afford to single out one or two officers to devote all their time to propaganda work alone. Would it be too much to ask if the provinces would include in their annual reports a few lines on propaganda work, and compare their activites from year to year. It is for the provinces to decide if whole-time men should be detailed to do this work, or it may be left with individual divisional forest officers who should again include in their annual reports the amount of propaganda work done in their areas. Perhaps a combination of the two would suit all localities.

A start can be made in colleges and high and secondary schools, and gradually village communities can be interested, and magic-lantern or cinema shows held once annually in important centres of the divisions would go a long way to advance the cause of forestry in the country.

— *The Timber Trades Journal, 11—5—35.*

4. Business as a Career :

Moneymaking and the Art of Living.

Does business offer as satisfactory a career to the university man as a profession? What is " commercial training " really worth? Must moneymaking conflict with the art of living to-day? These are the questions which Mr. John Benn sets himself to answer in his new book, *Tradesman's Entrance.* He finds it possible to answer the first question in the affirmative and the third in the negative, with the necessary reservations which spring from a thoughtful mind. He explains how he has arrived at his stimulating conclusions with an engaging modesty, for a certain measure of autobiography is necessary to his argument.

Mr. John Benn found at Harrow such a pronounced emphasis on public and professional employment that a commercial career tended to be ruled out altogether, " since the business man appeared to be out of himself and to be concerned chiefly with making money. " A salutary corrective of this fallacy was provided by a year at Princeton, where most of his American contemporaries regarded a commercial career as the normal sequel to the university. Cambridge followed, and the author took every opportunity to defend the commercial outlook in debates at the Union. When it came to settling down to a career, he went into the family publishing house, having satisfied himself that on every ground a libral education had claims to be the best training for business as for most other vocations.

The author admits that it would be absurd to suggest that a university degree is as essential for a business as for a medical or legal career, but from observing the progress of his Cambridge friends now in business he is sure that it is a real asset. He applies this dictum to commercial travelling no less than to other jobs. This does not mean that he thinks that salsemanship can be taught in a school, for a strenuous innings " on the road " has convinced him that it must be learnt by experience.

He has some very pertinent observations to make on the subject of making money. He reminds the reader that business is dependent on paying its way, and, unless this condition is fulfilled, both the proprietors and the employees inevitably go under. Business men, in fact, are not " money-grubbers, " for the making or losing of money is inseparable from commercial enterprise. Consequently, to most men whose lives are spent in business it is not possible to let the financial side look after itself. He points out the common fallacy of confusing wages and profits by a reminder that business has to face losses as well. Business, in his view, requires as much attention to the money aspect as to the product itself.

Competition presents obvious difficulties, its existence sometimes leading to price-cutting and bankruptcy, while its absence may mean profiteering or inefficient service. He will not accept competition as a form of war, because in practice it is usually a vital factor without which initiative and invention would be stifled and freedom of choice would disappear both for the consumer and producer. Mr. Benn has come to realise that business offers as much scope for leadership as public life, perhaps of a more personal kind. " In the discussion of public affairs, " he says, it is not always remembered that the man who actually employs ten men is of more practical value to the community than the politician who hopes to employ a hundred men. " He argues, too, that the standard of culture is gradually being raised by the normal operations of business. He gives facts and figures to disprove two widely held theories, the first that family businesses are losing ground in face of the modern " combine, " and the second that mechanisation is responsible for unemployment.

Beginning at the tradesman's entrance, he brings the reader in his final chapter to the front door. He is a wholehearted advocate of adequate leisure, and illustrates from his own experience the lasting advantages of shorter hours and longer holidays. The prospect of adequate leisure and all it implies, in Mr. Benn's submission, is indeed the most hopeful and exciting that has come to mankind, and, if business men will take the lead in affording opportunities for it, civilisation will be more than ever in their debt.

The author has put into attractive language thoughts which needed uttering in vindication of the very backbone of our national existence.

— *The Timber Trades Journal, 8—6—35.*

5. Forest Research in India, 1933-34 :

An important feature of the year's working is the " fixation " of copper in conjunction with arsenic in wood for preservative purposes. The fixation of arsenic in wood has for many years been the aim of wood preservists and chemists throughout the world, but it was Mr. Kamesam of the Wood Preservation Section at Dehra Dun who ultimately achieved this. Mr. Kamesam has now gone one step further and has evolved a technique for fixing copper, in addition to, and in conjunction with, arsenic in wood for preservative purposes. If the new process, known as the Ascu process, fulfils all the claims made for it, the cost of wood preservation will be reduced enormously while the preservation of the wood should be improved.

The work in the Chemical Branch was chiefly confined to the general study of the chemistry and commercial uses of minor forest products. The bark of *Actinodaphne hookeri*, known to be a specific for diabetes in Indian medicine, was found to contain an alkaloid named ' actinodaphnine '. Its chemical constitution has now been determined and it has been found to belong to the aporphine group of alkaloids. It is of interest to find that the probable active principle of the tap root of *Bombax malabaricum*, known as " musli " in the Indian system of medicine and reputed to possess excellent tonic properties, is a cephaline like phosphatide, which rarely occurs in vegetable tubers. Rotenone, the active principle of *Derris elliptica* and *Caracca verginiana* roots, has become very popular as a valuable insecticide all the world over. Its demand in India is likely to increase in the near feature hence the occurrence of *Derris elliptica* roots, containing 0·8 per cent. of rotenone, in Dibrugarh, Assam, may be considered as an important find, since it opens up the possibility of its cultivation in that locality, thereby ensuring a regular supply of roots of high rotenone content. Recently a new detergent consisting of sodium lauryl sulphate, has been put in the market under the commercial name of " Gardinol W. A. " or " Orvus " and its demand is on the increase. The raw material for this preparation is trilaurin. A search for the sources of this raw material revealed that it occurs to the extent of 96 per cent. in the fat from the seeds of *Actinodaphne hookeri*, and 70 per cent. in the fat of *Litsæa zeylanica* seeds, and to a lesser degree in the fat from the seeds of *Cinnamomum camphora*. Oak acorns are at present a waste product of the forest but in America the acorns are considered to be a good feeding material both for poultry and cattle. The food value of Indian acorns has been found to be good. The

oil content is low but it is a thin yellow oil of good quality consisting mainly of oleic and lignoceric glycerides. Under the President's direction a co-operative study of the semi-commercial cultivation of certain minor forest products chiefly medicinal plants has been started.

6. Insects of Sandal :

Taxonomy.— Reports on the identification of the insects of sandal, *Santalum album*, have been prepared by specialists and sent to press, *viz*, Anthicidae by R. Heberdy; Melasidae and Elatridae by E. Fleutiaux; Jassidae by H. S. Pruthi; Coccinellidae by R. Korchefsky; Formicidae by D. Mukerji; Pentatomidae by N. C. Chatterjee; Thysanoptera by T. V. Ramakrishna Ayyar. These papers add 297 species and 167 genera to the insect fauna of sandal.

Bionomics.— Work on the life-histories of several sandal insects was continued and one paper was published in *Indian Forest Records.*

Transmission Experiments.— The work on the experimental transmission of the spike disease of sandal by means of insects was continued at the Insectory, Indian Institute of Science, until the end of September 1933. The results of two hundred experiments with thirty-one species of Hemiptera appear to confirm the theory previously advanced that if spike is carried by insects it is very probable that the Jassid, *Moonia albimaculata*, is a vector. Highly suspicious symptoms were obtained in five well-defined cases as the result of infection with viruliferous individuals of this species. A careful study of the symptoms and biological considerations, and analyses of total nitrogen and starch contents leads to the conclusion that these plants are spiked though not virulently so. A cytological examination by Mr. M. J. Narasimhan, Mycologist to the Mysore Department of Agriculture, supports this contention, intracellular inclusions having been found by him in sections prepared by him.

Lantana aphids are also suspected as vectors of spike disease, one plant apparently being infected as a result of transmission experiments. Seventy-two cases in which species of beetles were used yielded negative results.

These data have been published in the *Indian Forest Records* and have also formed the subject of some notes in *Nature.* The deduction that spike has been experimentally transmitted by insects and that *Moonia albimaculata* is a proved

vector has not been generally accepted, mainly because leaves from the *Moonia* and aphid affected plants, when grafted on to healthy plants in order to ascertain if the diseased conditions were transmissible by grafting, failed to take and gave negative end-results. In the meantime the special grant subsidising research on spike disease has expired and the investigation has been closed down. It is a matter for regret that the retrospective decision of the Government of Madras to cease research on this subject makes it impossible to present unassailable scientific proofs of this achievement.

7. The ASCU Wood Preservation Process :

The most important achievement of the Wood-technology section during the year under review was the perfection of a wood preservative consisting of arsenic (*As*) and copper (*Cu*) compounds which can be employed in aqueous solution for injection into wood in steel pressure cylinders. It has been called " ASCU, " and is a logical development of the Falkamesam process. Patents for the process have been granted to the inventor, Mr. S. Kamesam (Officr in Charge of the Section) in Great Britain and India; patents are pending in the United States of America, Canada, Mexico, Argentine, Brazil, South Africa, and Australia, but the Indian Government have reserved for themselves the right to use the process, as and when required, free of charge. It is the first wood preservative containing arsenic and copper (compounded in the most effective proportions) which appears to ensure a high optimum degree of fixation, individually, of arsenic and copper in wood. In addition, despite the presence of copper, it is said to be entirely non-corrosive to steel, iron, and brass, and to be perfectly stable in contact with these metals. The previous use of arsenic and copper as wood preservatives has been extensive and well-known. Even at present, copper sulphate is employed for treating annually a few lakhs of wooden telegraph and telephone poles in France. Recent experiments conducted by this Section indicate that, for a unit of money, arsenic affords the maximum toxicity against wood destroying fungi, and a high degree of protection against termites, while copper is even superior to arsenic as far as termites are concerned.

During the year, experiments based on a new and accelerated technique for testing the relative efficacy of wood preservatives, indicated that a 4 per cent. solution of arsenic and copper in the proportion of 1 to 3 corresponds (on the basis of wood preserving efficacy) to undiluted 100 per cent coal tar creosote,

so that, as regards relative cost, if a gallon of creosote costs on the average about a rupee, ASCU cost only about 2½ to 3 annas. In Dehra Dun creosote is not available for less than about Rs. 2 per gallon.

8. The Railway Board Special Committee :

During May, 1933, an *ad hoc* committee was appointed by the Railway Board, with Sir C. V. Raman, F. R. S., N. L, in the chair. The other members were Messrs. J. M. D. Wrench and A. F. Harvey, Directors of Engineering, Railway Board, Mr. R. H. Irani, Senior Government Inspector of Railways, Bombay, and Mr. R. Sephton, Chief Engineer, Great Indian Peninsula Railway. The Committee sat for three days at Dehra Dun investigating the claims of the Falkamesam process which Mr. Kamesam has now improved upon with the ASCU process which ensures not only the fixation of arsenic (as in Falkamesam) but of copper also. Although the committee has not yet submitted their report, the chairman, on the basis of experiments made under his supervision at the Indian Institute of Science, Bangalore, has written to the Forest Research Institute that the inventor's claims regarding the fixation of arsenic in wood were " entirely substantiated. "

The Director General, Posts and Telegraphs, Government of India, deputed Mr M. N. Crawford, Director of Telegraph Engineering, United Provinces Circle, to attend the deliberations of the committee, and to report on the advisabiity of using treated wood in place of galvanised iron tubular poles, and also to report,—if treated wood poles are more economical,—as to the kind of chemical treatment that should be given to the poles for protection against decay and termite attack. It is understood that Mr. Crawford reported that he was not only convinced that properly treated wood poles would be more economical than iron poles, but that the ASCU process would be the best process to adopt for the Posts and Telegraphs Department.

9. Emulsion of Falkamesam and Crude Oil :

Several prominent railway engineers are of opinion that, if the Falkamesam or the ASCU process is to be adopted for treating railway sleepers in India, a supplementary antisplitting impregnation of crude oil into wood would be necessary. For combining crude oil injection with the antiseptic impregnation in one movement, several experiments were made to determine whether a suitable emulsion of the oil and the solution could be made. Such an emulsion should be fine and

stable enough to penetrate at least the sapwood of chir pine without the oil or the water separating unduly during the process. Viscosity observations made on emulsions containing different proportions of crude oil and the antiseptic solution were made; the effect of the degree of emulsification on the viscosity of the resulting emulsion was also studied Although fine emulsions with fluids could be obtained, it was noticed that the preservative got decomposed after standing for a short time, as part of the chemicals was precipitated. A single movement process involving the injection of Falkamesam and crude oil did not therefore appear to be practicable, and if an oil treatment is considered necessary, in addition to an ASCU or Falkamesam treatment, it will be necessary to do this separately. A dipping treatment in crude oil will probably be quite sufficient.

10. A New Method of Accelerated Service Test with Wood Proservatives :

During the year, a new method of testing wood preservatives in the antiseptic " grave-yard " was introduced. This bids fair to yield reliable results of considerable value in a very short time. Instead of employing sticks (even as small as an inch square in cross-section) impregnated with the preservative under test, fresh rotary-cut veneers of a very perishable wood like semul (*Bombax malabaricnm*) are used. The veneers are only a sixteenth of an inch thick, an inch wide and six inches long. They are treated in an open tank, ensuring a complete penetration of the preservative fluid Before the rainy season starts, they are placed in the Institute test-yard with half their length buried in the ground.

The superiority of the above method is based on the following considerations :—

(*a*) When a wood post placed in the ground is eventually destroyed by white ants or rot, the attack proceeds from one outer peripheral lamina to the next contiguous one inside. In veneer specimens, if the attack is confined to but a depth of 1/48 inch (a very small thickness) on either side, the middle 1/48 inch section has haidly any mechanical strength, so that it easily crumbles to pieces. Hence if the veneers are sound for a year, the concentration of chemical that has protected the veeneer for that period many with resonable safety be adopted in actual practice.

(*b*) As the test veneers should be preferably rotary-cut their surface is tangential and is, therefore, very similar to that of a round pole under service conditions.

(c) As the veneers are of a wood with large open pores, and are laid in the ground during the rainy season (at Dehra Dun the precipitation amounts to about 80 to 90 inches in about three months). and since the pieces are very thin and are exposed to the sun, the leaching and volatilisation conditions to which they are exposed can be taken as very severe. It may be noted also that the thin veneers are exposed on both their broad faces to leaching and volatilisation, whereas in a wood pole, the thin outer lamina is exposed to such conditions only over one face.

(d) As the buried pieces have practically only two dimensions, the precise extent of damage at the time of different inspections can be evaluated and recorded accurately, reducing the personal factor in such inspections to a minimum.

(e) The untreated controls are destroyed in a very short time in most cases, so that if the treated veneers in the same localities last for 9 months to a year, the treatment have considerable merit.

— *Forest Research in India, 1933–34.*

11. Polyphyletic Origin of Metazoa from Plants :

BOTANISTS show us an aspect of evolution-in-progress, so far as that *can* be shown, of which zoologists tell us nothing—because there is possibly nothing to tell. The evolution of plants is often indicated in terms of the appearance of the sexual differentiation in unicellular organisms, of the appearance of multicellularity, of the total life-cycle of one plant as an alternation of two generations, asexual and sexual, the individuals being semetimes morphologically distinct and independent. and of the various fate of these phases of the total life-cycle in, say, the moss, the fern and the angiosperm, when they are not distinct and independent individuals, " but the one remains permanently connected to the other like a parasite on its host plant " in Strasburger's words.

This aspect of evolution applies just as much to animals as to plants ; the vertebrate, like the angiosperm, is an integration of two phases of a life-cycle, the sexual phase being greatly reduced ; and other metazoan phyla exhibit other modes of development of the life-cycle. But they do not exhibit the development ' in progress ', so to speak ; each exhibits a particular mode established. There is as great a diversity among

animals as among plants as to what constitutes what may be called the individual, and there is no trace at all of the development of such diverse types of individual—in *animal* evolution.

At the same time there is a conspicuous lack of plausible genetic affinities among the animal phyla. Zoologists make half-hearted suggestions as to phyletic affinities and with more heart indulge themselves in the construction of hypothetical ancestral forms for the different phyla. But once the possibility is entertained of deriving metazoan phyla from the less specialised multicellular plants, it is easy to see why Eehinoderms, especially the extinct Crinoids, are such paradoxical animals ; *Hydra viridis* and *Convoluta roscoffensis* are no longer dubious cases of symbiosis but animals which retain something of the character of their plant ancestors ; vertebrates may be traced back, through the tail of the larvel Ascidian and the Tunicates with no tailed larva stage in their development, to perhaps a red alga ; and there may be more than a jingling verbal relationship between Bryophyta and Bryozoa.

J. C. McKerrow.

— *Nature, 12—6—35.*

12. Bird Malaria :

K. S. Shah (*Amer. J. Hyg.*, 19, 392–403 ; 1934), in view of the deficient information and divergent views on the incidence and develepment of gametocytes (crescents) in human malignant malaria (*Plasmodium falciparum*), has investigated birds infected with the malaria parasite *Plasmodium cathemerium*, which resembles in morphology and life-cycle the species *falciparum*. He states that when the canary is infected with *P. cathemerium*, gametocytes appeared in the peripheral circulation early in the infection and in the majority of cases simultaneously with the asexual forms The number of gamatocytes increased with the increase in asexual forms and the incidence was highest at the peak of infection ; the number of gametocytes diminished with the fall of the infection In a later paper in the same journal (pp. 502–507 ; 1934) Shah, Rozeboom and del Rosario record that gametocytes were present in sufficient numbers in the peripherial blood, during the early period of patency, to infect mosquitoes (*Culex pipiens*), that the chances of mosquitoes becoming infected were greater when they were allowed to feed at night than during the day, and that when canaries were experimentally infected with sporozoites the gametocytes appeared in the peripheral blood early in the infection and in most cases simultaneously with the asexual forms.

— *Nature, 22—6—35.*

13. Pollination Mechanism in Conifers :

PROF. JOSEPH DOYLE and Miss. Mary O'leary have published a series of papers upon the pollination mechanisms in conifers. Their researches include records of intensive observations in the field, which are interpreted most interestingly in the light of the wide knowledge of the senior author of comparative morphology of the reproductive structures in the group.

The authors point out that our knowledge of the movement of pollen on to the nucellus in *Pinus* has so far rested upon second hand statements, most of them derived from some incidental observations by Strasburger. Strasburger appears to have assumed, on the basis of other well-known cases, that a fertilisation drop was formed and, in view of their turgid transparant appearance, to have ascribed its formation to the two characteristic prolongations of the integument beyond the micropyle.

As the result of very patient investigation, the Irish observers have at last seen this fertilisation drop—but at 2 A. M. in the morning—and by 7-30 A. M, every ovule is dry ! This secretion appears to come from the nucellus, and though at night it may be found in almost every mature unfertilised ovule as it wells out of the micropyle and part of the way along the micropylar projection, it usually soon picks up some pollen grains from these arms. When these are immersed in the fluid, in the inverted ovule, they rapidly float with their winged surface uppermost on to the nucellus ; the grain is thus brought against the nucellus with the surface towards it through which the pollen tube emerges. More remarkable still, within ten minutes of the grain being thus transferred to the nucellus, the drop is once more reabsorbed while it still remains in the unpollinated ovule. The authors have tested this by introducing pollen into the drop at night. The argue cogently that the function thus suggested for the winged expansions to the pollen grain is much more reasonable than its use for transport of the grains in the air, as the larger grains of *Larix* and *Pseudotsuga* are without wings.

On the other hand, the authors have to solve the problem how these wingless pollen grains of *Larix* also reach the surface of an inverted ovule. In *Saxegothœa* and *Cedrus* they describe the germination of pollen grains well away from the micropyle and their growth to the nucellus : they also figure and discuss the function of the stigma-like projections in the integuments of *Pseudotsuga* and *Larix* These papers are full of stimulating discussion of new data that are a permanent contribution to our knowledge of the pollination mechanisms of the conifer.

— *Nature, 6—7—35.*

Notifications Relating to Rangers.

I.

With effect from the date of this order, in existing vacancies in the Fifth Grade :

1. Mr. P. Chengal Reddi from the Sixth grade permanent to the Fifth grade (temporary). 2. Mr. A. R. Manuels from the Sixth grade permanent to the Fifth grade (temporary). 3. Mr. P. V. Krishna Rao Nayudu from the Sixth grade permanent to the Fifth grade *sub protem.*

II.

With effect from the 23rd June 1935 vice Ranger K. R. Subrahmaniam, Sixth Grade, deceased :

1. Mr. A. Niladri Rao from the Sixth grade sub protem to the Sixth grade (temporary). 2. Mr. T. M. Krishnamacharya from the Seventh grade permanent to the Sixth grade sub protem. 3. Mr. P. Krishnan, from the Seventh grade sub protem to the Seventh grade (temporary). 4. Mr. D. V. Nagaratnam from the Seventh grade temporary to the Seventh grade sub protem. 5. Mr. Y. Subrahmaniam Nayudu, Trained Forester, to Ranger Seventh grade temporary.

III.

With effect from the date of this order, vice Mr. S. Sankaran, Ranger, Fourth Grade permanently reduced to the Fifth Grade :

1. Mr. K. Dooma Shetti from the Fifth grade permanent and Fourth grade sub protem to Fourth grade (temporary) and 2. Mr. M. P. Subbayya from the Fifth grade permanent to Fourth grade sub protem.

2. *With reference te the orders of Government in G. O. No. 818 Public, (Services), dated 22nd May 1935, permanent vacancies in the Rangers' cadre have not now been filled substantively but only on a temporary basis.*

Waltair Circle.

14—5—35. Mr. P. Gopalan, Udayagiri Range, Ganjam District, granted leave for three months from the date of relief.

23—5—35. Mr. D. E. Lewin, Ranger Fourth grade, transferred from Nellore to Ganjam for Balliguda Range. 2. On relief by No. 1 Mr. A. S. Kaunds Acting Ranger transferred to Vizagapatam for Palakonda Range.

1—6—35. Mr. T. Naganna, posted to Lakkavaram Range (as a temporary measure) in relief of Mr. P. Chengalreddi, Ranger Sixth grade. 2. Mr. P. Chengalreddi posted to Marrigudem Range *vice* Mr. A. Tirupathirayudu, Ranger Sixth grade reported sick.

6—6—35. Mr. B. Kotilingam, Palakonda Range granted leave for 2 months from date of relief.

10—6—35. Mr. A. Tirupatirayudu, granted leave for 4 months from 28–5–1935. He is granted the compensatory allowance of Rs. 12 per month for maintaining a double bullock cart.

15—6—35. Mr. M. B. Madappa, M. R. H. Forester Second grade to act as Ranger last grade from 14–5–35 *vice* Ranger P. Gopalam granted L. A. P. on Medical Certificate for 3 months.

20—6—35. Mr. C. G. Kriahna, Ranger Third grade, Devagiri Range, Paralakimedi Maliahs Division granted leave for four months from date of relief.

22—6—35. Mr. D. E, Lewin, Ranger Fourth grade, transfered to Devagiri Range of Paralakimedi division to relieve Mr. C. G. Krishna granted leave.

11—7—35. Mr. Y. V. Anjaneyulu, Surada Range granted leave on average pay on medical certificate for two months and 26 days and leave on half average pay on medical cerfificate for four days from date of relief.

16—7—35. Mr. A. S. Kaunds, M. R. H. to continue to act as Ranger last grade (New scale) from 19–7–35 *vice* Mr. C. G. Krishna, Ranger Third granted leave for 4 months.

29—7—35. Mr. M. A. H. Kirimani Sahib, granted further extension of leave for two months from 19–7–35 in continuation of the leave already granted.

Bellary Circle.

12—5—35. Mr. N. Sunderasa Iyer, Madanapalle Range posted to full additional charge of Kadiri Range from 2–5–35 until further orders,

17—5—35. Mr. T. M. Krishnamachari, on expiry of his special duty from the Fodder division to Vempalle range.

18—5—35. Mr. P. Kannan, Ranger Sixth grade posted to Sivapuram Range, Kurnool West Division.

21—5—35. Mr. A. Vyasulu, Cuddapah North Division granted extension of leave for one month from 23–5–35.

25—5—35. Mr. S. Ramachandra Iyer, Vontimitta Range, Cuddapah North division posted to additional charge of Sidhout Range. 2. Mr. D. N. Subrahmanya Iyer, Sidhout Range, and in additional charge of Vempalli Range, on relief by No. 1 to continue in charge of Vempalli Range until relieved by Mr. T. M. Krishnamachari posted to it separately. 3. On relief of Vempalli Range charge Mr. D. N. Subrahmanya Iyer

transferred to Kadiri Range, Anantapur division to relieve Mr. N. Sundaresa Iyer, Range Officer, Madanapalli Range at present in additional charge of it.

11—6—35. Mr. T. K. Ramaswami Iyer, Yerragondapalam Range, Kurnool East division granted leave for one month from the date of relief. 2. Mr. S. Sankaran, Ranger Fifth grade in charge of Markapur Range posted to additional charge of the current duties of Yerragondapalam Range *vice* No. 1 or until further orders.

12—6—35. Mr. C. R. Rajagopalan, Kurnool West division on expiry of his leave on 18-6-1935 posted to Sidhout Range, to relieve Mr. S. Ramachandra Iyer, Range Officer, Vontimitta who is in additional charge of Sidhout Range at present.

15—6—35. Mr. A. Vyasulu, Cuddapah North division on expiry of of his ieave on 23-5-1935 posted to Yerragondapalam Range, Kurnool East division to relieve Mr. S. Sankaran Range Officer, Markapur in additional charge of it at present.

17—6—35. Mr. T. Venkatasubbiah, Anantapur division granted extension of leave for 2 months from 20-6-1935, in continuation of leave already granted.

30—6—35. Mr. B. Krishna Rao, Anantapur division on expiry of his leave on 3-7-35 posted to Markapur Range Kurnool East division. 2. Mr. S. Sankaran, Markapur Range, Kurnool East division on relief by No. 1 transferred to Dornal Range, 3. Mr. T. Parameswaran Pillai, Dornal Range Kurnool East division, on relief by No. 2 granted leave for three months.

30—6—35. Mr. B. Gulab Singh, Kurnool East division on expiry of his leave on 15-7-1935 posted to Nandyal Range, Kurnool West division. 2. Mr. A. Muthukrishnan, Nandyal Range on relief by No. 1 granted leave for 4 months.

30—6—35 Mr. K. Purushothama Rao, Anantapur division granted extension of leave for 2 months from 21-6-1935 in continuation of the leave already granted.

9—8—35. Mr. T. Venkatasubbiah, Anantapur, division on expiry of leave on 20-8-1935 posted to Sivapuram Range, Kurnool West division in relief of Mr. B. Venkatarangam Naidu.

Working Plans Circle.

15—5—35. Mr. M. P. Philip, Ranger Sixth grade attached to the No. III Working Plan Division (Madura) and under orders of transfer to Bellary Circle, granted leave for two months from date of relief in that division. 2. He is considered as attached to the Madura Division until he actually joins Bellary Circle.

3—7—35. Mr. M. P. Philip, Ranger Sixth grade, granted 2 months leave from date of relief from this division and under orders of transfer to Salem Circle, has been relieved on the afternoon of 2-7-1935.

Coimbatore Circle.

17—5—35. Mr. R. Alagirisami Naidu, Nanguneri Range transferred to Srivilliputtur Range. To move first after handing over to Range Officer Ambasamudram. 2. Mr. A. B. Fenn, Srivilliputtur Range on relief by No. 1 transferred to Nanguneri Range.

28—5—35. Mr. C. R. Raghunatha Ayyangar, granted extension of leave for two months from 1–5–1935 in continuation of the leave for one month from 1–4–1935 granted.

1—6—35 Mr. A. Kunhunni Nair, on expiry of his leave on 2–7–35 posted to Bargur Range in Kollegal division.

26—6—35. The posting of Forester W. Vores (M. F. C. trained) to act as Ranger, Udamalpet Range, is cancelled. 2. The action of the District Forest Officer, Coimbatore South, in having posted Mr. P. Doraiswami Iyer, Pollachi depot, to hold additional charge of Udamalpet Range is appoved.

29—6—35. Mr. A. M. Srinivasan, Ramanathapuram Range, granted leave for 12 days from 13–6–1935 to 24–6–1935 (both the days inclusive). He should positively rejoin duty on 25–6–1935 after producing a medical certificate of fitness.

11—7—35. Mr. C. R. Raghunatha Ayyengar, granted extension of leave for one month from 1–7–1935 in continuation of the leave for two months from 1–5–1935 granted.

14—7—35. Mr. S. Nagalingam Pillai, posted to Udamalpet Range of Coimbatore South Division.

19—7—35. As the enquiry into the charges framed against Ranger C. S. Ramanathan is complete and without prejudice to any orders that may be ultimately passed on the charge sheet, the Ranger (now under suspension) is posted to the charge of Kollegal range, Kollegal division. 2. On relief by No. 1 Mr. M. Gopalaswami Naidu, to Bargur range in the same division.

6—8—35. Mr. V. Panchapakesa Iyer, M. F. C. Trained Forester, posted to Ulandi range *vice* Ranger K. O. Anandan granted one month's leave.

Ootacamund Circle.

30—5—35 Mr. K. R. Krishnan Nair, from Shankernaraina range to Uppinangadi range. To join duty on the expiry of his leave. 2. Mr. A. N. Ponniah, from Nilambur division to Shankernarain range Mangalore North division. To join duty on the expirv of his leave.

1—6—35. Mr. M. S. Subbiah, Uppinangadi range. on relief by Mr. K. R. Krishnan Nair, transferred to Nilambur division, for special duty. 2. Mr. C. J. Muthanna, Shankaranarayana range, on relief by Mr. A. N. Ponniah, transferred to Nilambur for special duty.

13—6—35. Mr. Thomas Thachil, granted leave from 25th May 1935 for $2\frac{1}{2}$ months without medical certificate.

16—5—35. Mr. B. Coates, Assistant to the Range Officer, Begur, Wynad division, transferred to Mannarghat Range, Palghat division, and posted for special duty from 29th April 1935 to 3rd May 1935 and then to take charge of the Range from 4th May 1935 in relief of Mr. C. Vasu, granted leave.

17—6—35. Mr. A. Rama Hebbar, granted leave as follows :— 1. Leave on average pay without medical certificate for 3 months and 21 days from 22-2-1935 to 11-6-1935. 2. Leave on half average pay without medical certificate for 5 months and 20 days from 12-6-1935 to 1-12-1935 inclusive (preparatory to retirement).

18—6—35. Mr. K. Dhooma Shetty, Range Officer, Ootacamund range, transferred as Range Officer, Coonoor range. 2. Mr. M. P. Subbiah, Range Officer, Coonoor range, on relief by No. 1 posted as Range Officer, Ootacamund range.

4—7—35. Mr. C. B. Ekambaram, Trained Forester (Second grade sub-protem), Palghat division, transferred to Nilgiris to take charge of Mudumalai range from Mr. K, Karunkaran Numbiar, Sigur range, holding additional charge of Mudumalai range.

11—7—35, Mr. P. A. Madhavan, Mudumalai range granted leave for 1 month from 29th June 1935 or date of relief. 2. Mr. K. Karunakaran Nambiar, Segur range to discharge only the current duties of Mudumalai range, *vice* No. 1 granted leave.

24—7—35. Mr. M. S. Subbiah, Acting Ranger, last grade on special duty in Mangalore South division, transferred to Nilambur division and posted for special duty.

4—7—35. Mr. M. S. Subbiah, Acting Ranger, last grade, on relief from Uppinandady range, posted for special duty in Mangalore South division.

16—7—35 Mr. K. P. Chathu Nair, special duty (Boundary verification) granted leave for 1 month from date of relief.

6—8—35. K. K. Appiah, on expiry of his leave on 30 August 1935, posted to Coondapur rage, Mangalore North division. 2. Mr. K. Shankaranarayana Rao, Coondapur range, on relief by No. 1 posted to Chedleth range.

6—8—35. Mr. A. Muhammad Akbar, *temporarily* posted to Chedleth range, Wynaad division, *vice* Mr. B. A. Cariappa transferred.

KUCKREJA L^TD..,

399, Variety Hall Road,

COIMBATORE.

THE PREMIER HOUSE FOR TENNIS AND CRICKET MATERIALS.

——(o)——

Happy Chance for Tennis :

— — — Tennis Racket Regutting.

PLAYERS !, Do not let your racket be spoilt by a marker. Let our expert handle it. All rackets will be re-polished, and re-shaped at our Coimbatore Branch. *Charges Moderate.*

FOR HOCKEY

Use our Goodshot and Willcox most reliable sticks ever produced.

FOR BADMINTON

Use our V. R. S. Special.

The Never-failing Companion of Dr. Subba Rao.

Of Special Utility to Officers in Forest Service.

THE "GECO" HAMMERLESS GUN.

12-bore D.B., B.L. gun with Anson and Deeley action. Fluid steel barrels, top lever cross bolt triple grip action. 30" barrels, left choke and right improved cylinder. Flat automatic safety slide on neck. Half pistol grip. Weight 6¼ lbs

A thoroughly efficient weapon

Non ejector Rs. 130/net. Ejector Rs. 160/net.

"THE BARTON" PRISMATIC BINOCULAR.

A handy field glass of perfect optical qualities. Centre rack focussing, large field of vision, stereoscopic effect. Magnification 8 times. In serviceable leather sling carrying case.

Rs, 55/- Less 10%.

THE "RESTICK" SEAT STICKS,

Best British make, aluminium fittings, tested iron-bark shafts, pigskin covered handles, rubber pad ferules, detachable ground discs.

Screw Fittings Rs. 40/- Snap Fittings Rs. 43/-

Less 10 percent.

GLARE PROTECTORS.

Fitted with Crooks A. B. or B·2 lenses. In a variety of stylish shell covered frames.

Rs. 10/- with case.

Powered Lenses Extra.

BARTON, SON & CO., LTD.,

BANGALORE AND OOTACAMUND.